

ABSTRACT

A reinforced wall system is provided for protecting underlying wall substrates against natural and unnatural blast effects. The reinforced wall system may be made by combining several layers of materials in various configurations. In a preferred embodiment, the reinforced wall system includes an underlying wall substrate, and a reinforcing wall covering. The reinforcing wall covering includes three layers of elastomeric material, one layer of a reinforcement grid, and a layer of a release agent. The first layer of elastomeric material is applied to the underlying wall substrate. A reinforcement grid of strands is then applied to the first elastomeric layer. Preferably, the grid includes horizontally and vertically extending strands having elastic cores wrapped by helically woven aramid fibers. A second elastomeric layer is applied to the reinforcement grid for additional blast protection. Preferably, the reinforcing wall covering includes a third elastomeric layer. However, the third elastomeric layer is separated from the second layer by a release agent. The release agent is applied between the second and third elastomeric layers to reduce the adherence between the two. If the reinforced wall system experiences an explosive blast, the third elastomeric layer shears at the release agent from the underlying second elastomeric layer providing independent deformation and protection from each layer. Textures may be incorporated into the elastomeric polymer to provide the appearance of a conventional wall and promote the adhesion of additional coatings. Alternatively, modified spackle incorporating polymer adhesives may be used to cover the most exterior polymer layer. Fungicides, bactericides, viruscides and fire retardants may be incorporated into the reinforcing wall system to provide protection against the spread of biological agents and fire.